The first thing you see after beginning your SAS session is the Version 6 SAS Display Manager System, which serves as the interface between you and the SAS System. Getting around in the display manager is easy, but you may find yourself moving a bit slowly at first. This is quite natural since you do not know what commands and special keys are available to move you from window to window and to make your selections and entries.

This paper presents Version 6 features that are useful for users and programmers. It also illustrates methods for improving user and programmer productivity. Topics include a detailed look at the display manager windows (program editor, log, and output), SAS/ASSIST, global commands and special-purpose windows, saving window contents, defining and using programmable function (PF) keys, defining window attributes, and executing multiple commands.

INTRODUCTION

Using Version 6 of the SAS System on the PC can be a very enjoyable experience. Whether you are a beginner or an advanced user of the SAS System, you will discover an assortment of powerful tools at your fingertips.

As is often the case with powerful software products, the availability of choices and options are often too numerous to cover in a paper of this length. So rather than lightly cover all of the possible features, the goal of this paper will be to explain, with the use of menus, those features that are significant and useful in getting a task accomplished. In particular, menus from the new SAS/ASSIST and SAS Display Manager System will be presented and discussed.

Using the SAS System on the PC

Version 6 makes available two methods of interacting with the SAS System and its many menus with SAS/ASSIST or the SAS Display Manager System. The method that is selected will depend on whether you are more accustomed to (1) pointing at icons on a screen and clicking a mouse or (2) issuing commands and/or pressing Programmable Function (PF) Keys. Either method results in the display and use of menus.
Data Entry and Management

The Data Entry and Management menu allows you to create a SAS data set, identify a data set as an active one for use in an application, display the contents of a SAS data set, edit a SAS data set, arrange the data in a SAS data set in a particular order, read data that was created by other software into a SAS data set, and to connect to a host (mainframe) system from a PC. Figure 3 illustrates the Data Entry and Management menu and its many options.

Report Writing

The Report Writing menu allows you to rename an existing SAS data set, produce a simple detail report displaying the data within a data set, create a tabular report including statistics, or produce a report displaying counts and percentages. Figure 4 illustrates the Report Writing menu with its many options.

Graphics

The Graphics menu, when selected, first asks whether "high resolution" or "line printer" graphics is desired. "High resolution" graphics requires SAS/GRAPH to be installed. "Line printer" graphics uses the base software to produce output. After selecting the output resolution desired, the Graphics menu is displayed. Figure 5 illustrates the Line Printer Graphics menu and its many options.

Statistical Analysis

The Statistical Analysis menu allows you to rename an existing SAS data set, produce summary reports for numeric data, calculate confidence intervals about the mean, create correlation coefficients between groupings of numeric data, conduct simple and multiple regression analysis, and perform one- or two-way analysis of variance. Figure 6 illustrates the Statistical Analysis menu with its many options. Note: SAS/STAT must be installed to perform Regression Analysis and Analysis of Variance.

Desktop Manager

The Desktop Manager menu allows you to conduct activities that are routinely performed in an office. These tasks include entering and searching phone numbers within the phone directory, preparing letters, performing basic financial calculations, using utilities to perform system tasks, performing typical calculations, preparing messages and/or reminders with the notepad facility, invoking the SAS Display Manager, and executing other software. Figure 7 illustrates the Desktop Manager menu and its many options.
The Programs menu allows you to manage and control SAS program code that has been created and saved. Figure 8 illustrates the Programs menu with its many options. Program code can be edited (modified), executed, deleted (erased), and undeleted (if accidentally erased).

The Setup menu allows you to specify a printer device, designate a graphics device, create sample SAS data sets, and install a mouse to use with SAS/ASSIST. Figure 9 illustrates the Setup menu and its many options.

The SAS Procedure Menu System provides a simple way to create SAS Procedure code. Each procedure consists of fill-in-the-blank panels that can easily be used to generate error-free procedure code. A more detailed look at the SAS Procedure Menu System and many of its panels will be presented later in this paper.

The first, program management, are used strictly within the Program Editor window. Commands in this category permit the retrieval, submission, and recall of program code. In addition, there are commands that can be used only on the lines themselves, better known as "line commands". Line commands provide text editing capabilities, such as inserting, replicating, copying, moving, and deleting one or more program lines.

Session management commands can be issued from any window of the Display Manager. Typical applications include erasing windows with CLEAR, ending the SAS session with BYE, and invoking "special" windows. Special windows will be presented later in this paper.
Since the SAS Display Manager System is window-based, window management commands are used extensively. As in session management, window commands can be issued from any window. Commands such as COLOR and ZOOM control the window’s color and size.

Figure 11 illustrates the three primary windows of the SAS Display Manager.

The Program Editor Window

The program editor is the window where user-written programs are created, modified, and submitted for execution by the SAS System. Figure 12 illustrates the editor with a DATA step program. The program creates a SAS data set called INVENTRY which contains three variables: ITEM, QTY, and PRICE and six observations (records).

The SAS System Log Window

The SAS System Log window contains notes, messages, and errors from submitted program and procedure code. Figure 13 illustrates the log as it relates to the SAS data set INVENTRY.

The Output Window

The output window is the area where information is displayed as a result of submitting output-producing procedures. Since the DATA step produces no output, the output window is empty.

SPECIAL WINDOWS

This section explains the special windows within the SAS System environment. They can be called (opened) from any window by specifying their name. As each window is called the new one overlays any existing windows resulting in a layered window environment. Consequently, any window not required to be opened should be closed prior to the calling of a new window. Figure 14 illustrates closing special windows with the END command.

The HELP Window

The HELP special window is available when assistance is needed about procedures, other products, DATA step processing, special windows, or the display manager. Figure 15 illustrates the method of calling the HELP window with the HELP command and Figure 16 displays the two windows associated with HELP.
The KEYS Window

The KEYS window displays the PF Keys in effect for each window. It is opened with the KEYS command. These defined keys can be altered by tabbing to an entry and entering a valid value such as a command. After the value is entered, the window can be closed along with any values that were entered by typing END on the Command line and pressing ENTER. Figure 17 shows the KEYS window with default settings.

The OPTIONS Window

The OPTIONS window displays the SAS System options in effect during the session. It is opened with the OPTIONS command. Values can be changed by tabbing to an entry and entering a valid value for that entry. Notice that the entries for DATE and NUMBER have been turned to the "off" position. After the value is entered, type END on the Command line and press ENTER to close the window. Figure 18 illustrates the OPTIONS window with default settings.

The TITLES Window

The TITLES window provides an area where one to ten entries can be defined for use with procedure output headers. It is opened with the TITLES command. Defining titles requires tabbing to an entry and entering a value. To close the window, type END on the Command line and press ENTER. Figure 19 shows the TITLES window with two title lines.

The FOOTNOTES Window

The FOOTNOTES window allows up to ten entries to be defined for procedure output footers. It is opened with the FOOTNOTES command. Defining footnotes requires tabbing to an entry and typing a value. To close the window, type END on the Command line and press ENTER. Figure 20 illustrates the FOOTNOTES window.
The NOTEPAD Window

The NOTEPAD window provides an area for entering memos or miscellaneous information. It is opened with the NOTEPAD command. Simply type whatever your heart desires, since there is no editor to check what has been entered. To close the window, type END on the Command line and press ENTER. Figure 21 illustrates the NOTEPAD window.

The DIR Window

The DIR window displays entries within the defined libref (ddname). It is opened with the DIR command. These entries consist of SAS data sets, catalogs, etc. To close the window, type END on the Command line and press ENTER. Figure 22 illustrates the DIR window.

The FILENAME Window

The FILENAME window displays any defined filerefs with their associated file names. It is opened with the FILENAME command. Information displayed in this window cannot be changed here. The adding or altering of filerefs must be executed with the FILENAME statement in the program editor. To close the window, type END on the Command line and press ENTER. Figure 25 shows the FILENAME window.

The VAR Window

The VAR window displays the attributes of a SAS data set, such as the variable's name, type (character or numeric), and any defined labels. It can be opened in one of two ways. The first, via the DIR window by tabbing to the desired data set and placing an X next to the entry name and pressing ENTER. The second method is by calling the window using the VAR command. Then simply enter the name of the data set desired and press ENTER.

To close the window, type END on the Command line and press ENTER. Figures 23 and 24 illustrate the two methods of opening the VAR window.
The LIBNAME Window

The LIBNAME window displays any defined librefs with their associated path names. It is opened with the LIBNAME command. As in the FILENAME window, information cannot be added or changed here. The LIBNAME statement must be executed from the program editor to add or alter librefs. To close the window, type END on the Command line and press ENTER. Figure 26 illustrates the LIBNAME window.

The MENU Window

The MENU window displays four categories of procedures: base, utilities, remote link, and other products (if installed). It is opened with the MENU command. The purpose of this window is to provide fill-in-the-blank menus for each of the SAS System procedures. As a result of completing a fill-in-the-blank menu, procedure code is automatically created. Figure 27 illustrates the MENU window.

SAS PROCEDURE MENU SYSTEM

The SAS Procedure Menu System provides users with an easy way to interact with the many SAS procedures. Through the use of fill-in-the-blank menus, users create error-free procedure code that can be saved and modified at a later time. Of course the fill-in-the-blank menus are not a required item, but they can make complicated or lengthy procedures a bit easier to deal with.

To illustrate how the system works, a common procedure, PRINT, will be illustrated.

Calling the PRINT Procedure Menu

To begin the process, the PRINT fill-in-the-blank menu is called as illustrated in Figure 28.

The PRINT Procedure Menu

The PRINT procedure menu consists of two screens of fill-in-the-blank items. As Figures 29 and 30 illustrate, certain items are selected by either entering specific information about the SAS data set or by placing an "X" besides the desired feature.

In our example, the data set name that was entered is INVENTORY; the options Label, Split=, N, and NOOBS have been activated; a format will be used to display the variable PRICE; and three labels will be used for variable column headings.

After entering the previous values, the fill-in-the-blank menu is saved, see Figure 31. The next step is to have the system create the requested procedure code. This is accomplished by executing (submitting) the fill-in-the-blank menu screen and its contents.
Recalling Procedure Code

The procedure code automatically created in the previous step can be recalled in the program editor as Figure 33 shows. This is accomplished with the RECALL command.

Viewing Recalled Procedure Code

The procedure code that was recalled in the previous step can now be modified and resubmitted, stored to diskette, or transferred to the host (mainframe) system. Figure 34 illustrates the code generated from the fill-in-the-blank MENU system.

Other MENU System Procedures

As in the PRINT procedure example, the MENU system provides access to a host of other fill-in-the-blank procedures. It is beyond the scope of this paper to illustrate how each of these menus work. So if you have not had the pleasure of using the MENU system please try each individually.

CONCLUSION

Working with the numerous Menus provides an opportunity to see the many features available with the SAS System. It can be a rewarding experience indeed. Happy menuing!
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REFERENCES

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